
-continued

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1. A recombinant antibody or an antigen binding fragment thereof for binding T4 thyroid hormone and for binding halogenated bisphenol A.

2. The recombinant antibody or antigen binding fragment of claim **1**, wherein the recombinant antibody or antigen binding fragment has an affinity of 530 pM or less towards T4 thyroid hormone.

3. The recombinant antibody or antigen binding fragment of claim **1**, wherein the recombinant antibody or antigen binding fragment has an affinity of 600 nM or less towards halogenated bisphenol A.

4. The recombinant antibody or antigen binding fragment of claim **1**, wherein the recombinant antibody or antigen binding fragment comprises amino acids of one or more complementarity determining regions (CDRs) selected from the group consisting of:

a light chain region 1 comprising amino acids corresponding to amino acids 24-33 of SEQ ID NO:3 or SEQ ID NO:5;

a light chain region 2 comprising amino acids corresponding to amino acids 49-55 of SEQ ID NO:3 or SEQ ID NO:5;

a light chain region 3 comprising amino acids corresponding to amino acids 88-96 of SEQ ID NO:3 or SEQ ID NO:5;

a heavy chain region 1 comprising amino acids corresponding to amino acids 31-35 of SEQ ID NO:4 or SEQ ID NO:6;

a heavy chain region 2 comprising amino acids corresponding to amino acids 50-66 of SEQ ID NO:4 or SEQ ID NO:6; and

a heavy chain region 3 comprising amino acids corresponding to amino acids 99-113 of SEQ ID NO:4 or SEQ ID NO:6.

5. The recombinant antibody or antigen binding fragment of claim **4**, wherein said recombinant antibody or antigen binding fragment comprises amino acids of at least two, at least three, at least four, at least five or at least six CDRs defined in claim **4**.

6. The recombinant antibody or antigen binding fragment of claim **1**, wherein the recombinant antibody or antigen binding fragment comprises a heavy chain variable domain amino acid sequence comprising a CDR3 as set forth in amino acids 99-113 of SEQ ID NO:4 or SEQ ID NO:6.

7. The recombinant antibody or antigen binding fragment of claim **1**, wherein the recombinant antibody or antigen binding fragment comprises a heavy chain variable domain amino acid sequence comprising a CDR1 as set forth in amino acids 31-35 of SEQ ID NO:4 or SEQ ID NO:6, a CDR2 as set forth in amino acids 50-66 of SEQ ID NO:4 or SEQ ID NO:6; and a CDR3 as set forth in amino acids 99-113 of SEQ ID NO:4 or SEQ ID NO:6.

8. The recombinant antibody or antigen binding fragment of claim **1** wherein the recombinant antibody or antigen binding fragment comprises

a heavy chain variable domain amino acid sequence comprising a CDR1 as set forth in amino acids 31-35 of SEQ ID NO:4 or SEQ ID NO:6, a CDR2 as set forth